



**GIDC Degree Engineering College**

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# Introduction of Civil Engineering

## **Civil Engineering**

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# Introduction

- ✓ “Civil Engineering is the art of directing the great sources of power in nature for the use and convenience of man”



- ✓ “Civil Engineering is the field of engineering concerned with Planning, Design and construction for environmental control, development of natural resources, buildings, transportation facilities and other structures required for health, welfare, safety, employment and pleasure of mankind.”

-Fredrick S. Merrit

- Civil Engineering can also be described as “Engineering concerned with design, constructing and maintaining works of public utility”.

- Civil Engineer :

“ One who designs and maintains works of public utility is known as Civil Engineer”.

# Branches of Civil engineering

- i. Surveying and Leveling
- ii. Building, planning, and Construction
- iii. Advanced Construction
- iv. Structural Engineering
- v. Geotechnical Engineering
- vi. Water Resources Engineering
- vii. Transportation Engineering
- viii. Environmental Engineering
- ix. Town Planning

# Surveying & Levelling

- ❑ surveying includes measurement of distances and angles in *HORIZONTAL* & *VERTICAL PLANES*, while leveling is the measurement of heights in Vertical planes.
- ❑ Basic aim of surveying is to prepare a map of the area to some scale.



# Building Planning & Construction

- Buildings are planned according to the fundamental principles of planning and bye-laws of local municipal bodies.



# ADVANCED CONSTRUCTION

- Construction of Dams, Bridges, Tunnels, Ports, etc. required several advanced techniques of construction.



# Structural Engineering

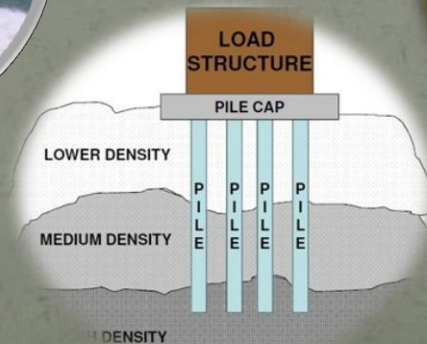
- This branch of civil Engineering deals with the structural analysis and design of structures.





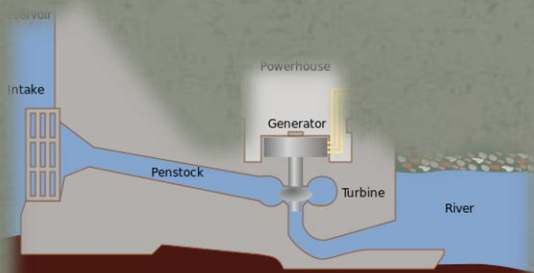
# Geotechnical Engineering

- Geotechnical Engineering is that fields of civil engineering which deals with Soil investigation and design of proper foundation of structures.



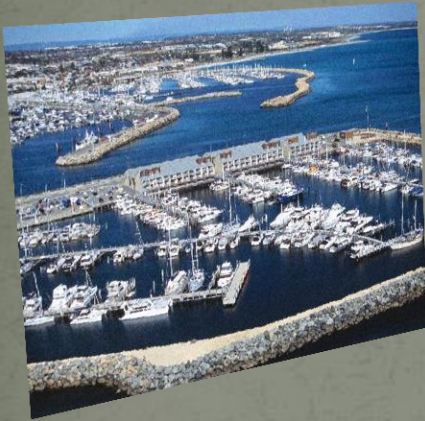
# Water Resources Engineering

- Water resources Engineering means measurement, utilization, and development of water resources for agriculture, municipal and power generation purpose.



# Transportation Engineering

- Transportation means movement of passenger and goods by means of vehicles on land, ships on water and aircrafts in air.



# Environmental Engineering

- Environmental Engineering deals with pollution control and public health engineering.
- Major environmental problems which mankind is facing now are pollution of environment, Global Warming, Acid Rain, Depletion of Ozone layer and depletion in natural resources.

# Town Planning

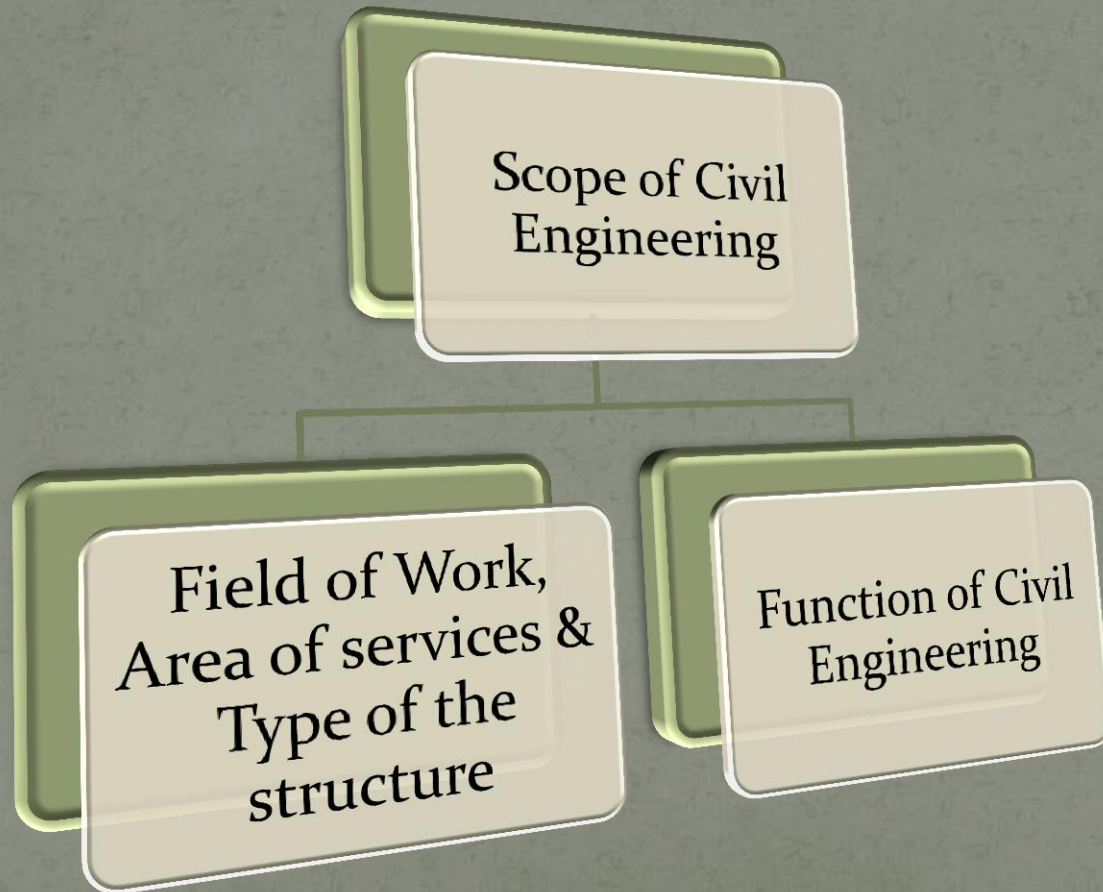
- Town planning means planned and controlled growth of town by dividing land of the town in to the different land use zones & regulating building construction to provide better environment for the people of the town.
- Planning of a very large area covering several towns & villages is known as regional planning.



# SCOPE OF CIVIL ENGINEERING

- The main scope of Civil Engineering or the task of engineering is planning, designing, estimating, supervising construction , managing construction, execution & maintenance of structures.

# Scope of civil Engineering



- Field of Work, Area of services & type of the structure :
  - › Building Construction
  - › Construction of Heavy Structures
  - › Geotechnical Engineering
  - › Transportation Engineering
  - › Water Resources Engineering
  - › Environmental Engineering
  - › Town planning



- Function of Civil Engineering
  - › Surveying
  - › Planning
  - › Structural analysis & design
    - I. Estimating
    - II. Costing & accounts
    - III. Valuation
    - IV. contracts
  - › Construction management
    - I. Planning & Schedule
    - II. Construction execution & supervision
  - › Quality control and research
  - › Maintenance of structure

# Role of civil Engineering in Society

- 1) In Surveying, Planning, Designing, Estimation & Execution of structure.
- 2) To use scientific & Engineering principles.
- 3) To solve different Engineering problems.
- 4) To implement management techniques.
- 5) To carry out surveying & leveling with survey instrument.
- 6) To carry out soil investigation.

- 7) To carry out planning of building.
- 8) To carry out the design of structures.
- 9) To carry out quantity survey & to prepare estimate.
- 10) To invite tenders.
- 11) To supervise the work during execution.
- 12) To carry out valuation of land or building.

- 13) To carry out valuation of land or building.
- 14) To maintain public health & protect the environment.
- 15) To work for general welfare of people.
- 16) To provide basic infrastructure of the structures for projects of many other engineering disciplines.
- 17) To carry out maintenance work out structures

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**Thank You**